Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
JUN 1968		**00-00-1968 to 00-00-1968**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Abate and Dursban Against Aedes Aegypti (L.) Breeding in Concrete Water Jars in Bangkok, Thailand	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Walter Reed Army Institute of Research,Department of Entomology,Washington,DC,20012**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**2**	

ABATE® AND DURSBAN® AGAINST *AEDES AEGYPTI* (L.) BREEDING IN CONCRETE WATER JARS IN BANGKOK, THAILAND

B. MICHAEL GLANCEY,[1] MOUFIED A. MOUSSA,[2] JOHN E. SCANLON,[3] AND C. S. LOFGREN[1]

INTRODUCTION. Tests conducted in Thailand by Lofgren *et al.* (1967) in 1965 showed that Abate® (*O,O*-dimethyl phosphorothioate *O,O*-diester with 4,4'thiodiphenol) and Dursban® (*O,O*-diethyl *O*-3,5,6-trichloro-2-pyridyl phosphorothioate) were effective in controlling breeding of *Aedes aegypti* (L.) in concrete water storage jars. This paper describes further testing in 1965 and 1966 with both compounds and compares the effectiveness of various formulations of Abate.

MATERIALS AND METHODS. Concrete water jugs were purchased on the local market and placed on a cement floor in an open area under a building housing a military school where they were exposed to the general atmosphere but were protected from windblown debris. After the jugs were filled with 45 gallons of water, doses and formulations of the larvicides were added. All tests were made in triplicate. Also, three jugs were left untreated as checks. Initially and at weekly intervals thereafter, 100 third or fourth instar larvae were collected in the field and added to the jugs each Friday. Seventy-two hours later the surviving larvae were counted.

In 1965, emulsifiable Abate was tested at 0.1 and 1.0 p.p.m. and emulsifiable Dursban at 1.0 and 10.0 p.p.m. In 1966, Abate was tested as an emulsifiable concentrate at concentrations of 0.025, 0.05, 0.1, and 1.0 p.p.m., as a 1 percent granular formulation (calcined, 16–30 mesh attapulgite) at 0.1 and 1.0 p.p.m., and as formulated in a concrete pellet. In preparing the pellet, 5 parts of sand and 1 part of cement were mixed dry, and then 1 part of the mixture was added to 2 parts of water. This slurry was poured into plastic cups lined with Parafilm®,[4] and a sample of Abate containing 98 percent technical material was added, thoroughly mixed, and allowed to harden for 3 days. The final pellets contained 98 mg. of Abate; thus one pellet in 45 gallons of water theoretically provided a dose of 0.516 p.p.m.[5] The granular formulations were prepared by spraying Abate in an acetone solution on the granules of attapulgite as they were tumbled in a gallon jar on a roller. Since calcined granules do not disintegrate when they are placed in water, we hoped the insecticide would be released from them more slowly than from noncalcined granules. In 1966, Dursban was tested only as an emulsifiable concentrate at rates of 0.1 and 1.0 p.p.m.

Tests were made with static and fluctuating (normal usage) water levels. For the tests with fluctuating levels, 5 gallons of water were removed each Monday, Tuesday, and Wednesday, and on each Thursday, 15 gallons of fresh water were added. For the static tests, a constant water level was maintained. In 1965, tests were made for 26 weeks; in 1966, they were continued for 34 weeks.

RESULTS. The data (Table 1) show that Abate was an effective residual larvicide in the concrete water jars. Except in the first test of granules, complete kill of

[1] Entomologists, Entomology Research Division, Agr. Res. Serv., U.S.D.A., Gainesville, Florida 32601.

[2] Entomologist, United States Army Medical Component, SEATO, now at Medical Field Service School, BAMC, Ft. Sam Houston, Texas.

[3] Chief, Department of Entomology, Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Washington, D.C.

[4] Mention of a proprietary product does not necessarily imply endorsement of this product by the U.S.D.A.

[5] The authors express their appreciation to Dr. Ralph B. Turner of the Gainesville, Florida laboratory for formulating the concrete pellets.

TABLE 1.—Results of residual larvicide tests with Abate and Dursban applied to water in concrete water jars for the control of *A. aegypti* in Bangkok, Thailand (average of 3 tests).

Insecticide	Formulation	Concentration (p.p.m.)	Avg. no. of consecutive weeks with no live larvae
		Static Water Level	
		1965	
Abate	Emulsifiable concentrate	1.0	>23.0
		.1	17.0
Dursban	Emulsifiable concentrate	10.0	>23.0
		1.0	5.3
		1966	
Abate	Emulsifiable concentrate	1.0	>34
		.1	19
		.05	20
		.025	15
	Granular	1.0	34
		1.0[a]	>34
		.1	1
		.1[a]	22.5
	Cement pellet	.516	11.7[b]
Dursban	Emulsifiable concentrate	1.0	4
		.1	1
		Fluctuating Water Level	
		1965	
Abate	Emulsifiable concentrate	1.0	18.3
		.1	7.3
		1966	
Abate	Emulsifiable concentrate	1.0	>34
		.1	16.3
		.05	13.7
		.025	11
	Granular	1.0	1
		1.0[a]	>34
		.1	1
		.1[a]	14.3
	Cement pellet	.516	8.3
Dursban	Emulsifiable concentrate	1.0	5.3
		.1	3

[a] Duplicate test with a different lot of 1 percent granules.
[b] Kill incomplete for 1 to 2 weeks, but 100 percent thereafter.

larvae was obtained for 18.3 to more than 34 weeks when 1.0 p.p.m. of the emulsifiable concentrate and granular formulations were used, whether the water level was static or fluctuating; no explanation can be given for the poor control with the first granular formulation. The emulsifiable concentrate at a dose of 0.025 p.p.m. gave 11 weeks of control when water levels fluctuated and 15 weeks of control when it was static. The cement pellets gave the shortest control of the three formulations tested (8.3 and 11.7 weeks). Dursban gave complete kill for a much shorter time than Abate—a maximum of 5.3 weeks at 1 p.p.m.; however, in 1965, the concentration of 10 p.p.m. gave over 23 weeks of control when the water level was static.

Literature Cited

LOFGREN, C. S., SCANLON, J. E., and ISRANGURA, V. 1967. Evaluation of insecticides against *Aedes aegypti* (L.) and *Culex pipiens quinquefasciatus* Say (Diptera:Culicidae) in Bangkok, Thailand. Mosq. News 27(1):16–21.